

Claims

- [c1] What is claimed is:
- 1.A turf aerator comprising:
a body having a unibody construction; and
a plurality of wheels rotatably coupled to the body and
supporting the body for movement on the turf.
- [c2] 2.The turf aerator according to claim 1,
said body including a left side member and a right side
member,
said side members being formed from sheet metal.
- [c3] 3.The turf aerator according to claim 2,
said side members bearing a substantial portion of the weight
of the aerator.
- [c4] 4.The turf aerator according to claim 2,
said side members bearing a majority of the weight of the
aerator.
- [c5] 5.The turf aerator according to claim 2,
said side members each being formed from 4 to 16 gauge
sheet metal.
- [c6] 6.The turf aerator according to claim 2,
said side members each including at least one edge that is
bent to provide improved lateral strength to the side member.

- [c7] 7.The turf aerator according to claim 6,
said at least one edge being bent in a generally U-shaped, V-
shaped, or L-shaped configuration.
- [c8] 8.The turf aerator according to claim 2; and
a crank shaft assembly supported by the side members.
- [c9] 9.The turf aerator according to claim 8,
said crank shaft assembly being directly coupled to and
extending between the side members.
- [c10] 10.The turf aerator according to claim 8; and
a top cover coupled to and extending between the side
members,
said top cover being adapted to cover at least a portion of the
crank shaft assembly.
- [c11] 11.The turf aerator according to claim 10,
said top cover including a hinge that allows the top cover to be
readily shifted between a closed position wherein the top
cover covers at least a portion of the crank shaft assembly and
an open position wherein the crank shaft assembly is
substantially uncovered and accessible from above.
- [c12] 12.The turf aerator according to claim 11; and
a releasable latch for maintaining the top cover in the closed
position.

[c13] 13.The turf aerator according to claim 8,
said crank shaft assembly including a rotatable crank shaft
comprising a plurality of axially spaced plates aligned along a
common axis of rotation and a plurality of eccentric bars offset
from the axis of rotation,
each of said eccentric bars being rigidly coupled to and
extending between a respective adjacent pair of the plates.

[c14] 14.The turf aerator according to claim 13; and
a plurality of generally upright tines operably coupled to the
crank shaft,
each of said tines including a base portion coupled to a
respective eccentric bar and a tip portion configured to cut and
remove plugs from the turf.

[c15] 15.The turf aerator according to claim 2,
said wheels being attached directly to the side panels so that
substantially all the weight of the aerator is transferred through
the wheels to the side panels.

[c16] 16.The turf aerator according to claim 2,
said body further including a front member formed from 4 to 16
gauge sheet metal,
said front member being permanently attached to and
extending between the side members.

[c17] 17.The turf aerator according to claim 16; and

a motor coupled to and supported on the front member.

[c18] 18.The turf aerator according to claim 16,
said body further including a rear member formed from 4 to 16
gauge sheet metal,
said rear member being permanently attached to and
extending between the side members.

[c19] 19.The turf aerator according to claim 18,
said left side member, right side member, front member, and
rear member each including at least one edge that is bent to
provide improved strength to the member.

[c20] 20.A turf aerator comprising:
a crank shaft assembly including a rotatable crank shaft
comprising a plurality of axially spaced plates and a plurality of
eccentric bars, each of said eccentric bars being rigidly
coupled to and extending between a respective pair of
adjacent plates; and
a plurality of generally upright tines, each of said tines
including a connection portion rotatably coupled to a
respective eccentric bar and a tip portion configured to cut and
remove plugs from the turf.

[c21] 21.The turf aerator according to claim 20,
each of said connection portions defining an opening through
which a respective eccentric bar extends.

- [c22] 22.The turf aerator according to claim 21,
said connection portion including a base defining a first portion
of the opening and a cap defining a second portion of the
opening,
said cap being releasably coupled to the base.
- [c23] 23.The turf aerator according to claim 22; and
a bushing at least partly received in the opening and disposed
between the connection portion and the eccentric bar.
- [c24] 24.The turf aerator according to claim 23,
said cap including a grease fitting for permitting lubrication of
the bushing.
- [c25] 25.The turf aerator according to claim 20,
said tine including an elongated shaft portion extending
between the connection portion and the tip portion,
said tip portion including a removable end piece that is
threadably coupled to the shaft portion.
- [c26] 26.The turf aerator according to claim 20,
said aerator including less than 8 tines.
- [c27] 27.The turf aerator according to claim 20,
said aerator including 3 to 5 tines.
- [c28] 28.The turf aerator according to claim 20; and
a tine guide positioned generally below the crank shaft

assembly and including a guide plate defining a plurality of slots,

each of said slots receiving a respective one of the tines.

[c29] 29.The turf aerator according to claim 28,
said guide plate being shiftable relative to the crank shaft assembly between an aeration position and a transport position,
said guide plate causing shifting of the tines when the guide plate is shifted between the aeration position and the transport position.

[c30] 30.The turf aerator according to claim 29,
said tines being in a more upright position when the guide plate is in the aeration position than when the guide plate is in the transport position.

[c31] 31.The turf aerator according to claim 30; and
a body for supporting the crank shaft assembly and tine guide;
and
a plurality of wheels rotatably coupled to the body and providing for movement of the body relative to the turf.

[c32] 32.The turf aerator according to claim 31,
said tine guide including a pair of side supports, each of said side supports presenting first and second ends,
said first ends of the side supports being rigidly coupled to the

guide plate,
said second ends of the side supports being pivotally coupled to the body so that the guide plate swings relative to the body along a substantially arcuate path when the guide plate is shifted between the aeration position and the transport position.

[c33] 33.The turf aerator according to claim 31,
said crank shaft assembly including a pair of bearings rigidly coupled to the body and supporting the crank shaft for rotation relative to the body.

[c34] 34.The turf aerator according to claim 33; and
a motor rigidly coupled to and supported by the body; and
a drive belt rotated by the motor,
said crank shaft assembly including a shieve rigidly coupled to the crank shaft and operably coupled to the drive belt so that rotation of the drive belt causes rotation of the shieve.

[c35] 35.The turf aerator according to claim 34,
said body having a unibody construction.

[c36] 36.The turf aerator according to claim 31; and
a top cover hingedly coupled to the body,
said top cover being selectively shiftable between a closed position wherein the top cover covers at least a portion of the crank shaft assembly and an open position wherein the crank

shaft assembly is substantially uncovered.

[c37] 37. A highly transportable turf aerator, said turf aerator being shiftable between an operating configuration wherein the aerator can be used to remove plugs from the turf and a compact configuration wherein the dimensions of the aerator are minimized to facilitate transportation and storage of the aerator, said turf aerator comprising:

- a substantially rigid body;
- a motor supported by the body;
- a plurality of tines shiftable relative to the body and powered by the motor, said tines being operable to cut and remove plugs from the turf;
- a plurality of wheels rotatably coupled to the body and providing for movement of the body on the turf; and
- a handle hingedly coupled to the body, said handle being shiftable between an extended position wherein the handle extends outwardly from the body and a folded position wherein the handle is folded over the body, said handle being in the extended position when the aerator is in the operating configuration, said handle being in the folded position when the aerator is in the compact configuration.

[c38] 38. The turf aerator according to claim 37, said aerator having a maximum height and length when in the compact configuration,

said maximum height being less than about 36 inches,
said maximum length being less than about 48 inches,
said aerator having a wheel base less than about 36 inches.

[c39] 39.The turf aerator according to claim 38,
said maximum height being less than about 30 inches,
said maximum length being less than about 42 inches,
said wheel base being less than about 24 inches.

[c40] 40.The turf aerator according to claim 38,
said maximum height being less than 24 inches,
said maximum length being less than 39 inches,
said wheel base being less than about 20 inches.

[c41] 41.The turf aerator according to claim 37; and
a guard bar rigidly coupled to the body,
said body presenting front and rear portions,
said handle being coupled to and extending from the rear
portion of the body,
said guard bar being coupled to and extending from the front
portion of the body.

[c42] 42.The turf aerator according to claim 41,
said guard bar including a generally horizontal portion that can
readily be manually grasped to facilitate manual manipulation
of the aerator.

[c43] 43.The turf aerator according to claim 41,

said guard bar extending in front of the motor to thereby protect the motor from frontal impact.

[c44] 44. The turf aerator according to claim 37, said body having a unibody construction.